ABSTRACT

A medical imaging system for conducting an image-guided medical procedure on a subject and a method for performing the same is provided. The system includes a medical imaging apparatus, such as a CT scanner, magnetic resonance imaging system, or ultrasonic imaging system, etc., for obtaining volumetric images of the subject. Through intervention planning techniques, an interventional procedure on a subject using the volumetric images is determined. A mechanical arm assembly disposed in proximity to the medical imaging apparatus carries out the interventional procedure. The mechanical arm assembly includes a base support, a distal end, a plurality of arm segments, and a plurality of joints between the arm segments for carrying out the interventional procedure. An end-effector is disposed at the distal end of the mechanical arm assembly. The end-effector includes gripping means for selectively gripping and releasing a surgical instrument during the interventional procedure.